

MAR 11 1899

U. S. DEPARTMENT OF AGRICULTURE.

REPORT FOR JANUARY, 1899.

TEXAS SECTION

OF THE

CLIMATE AND CROP SERVICE

OF THE

WEATHER BUREAU.

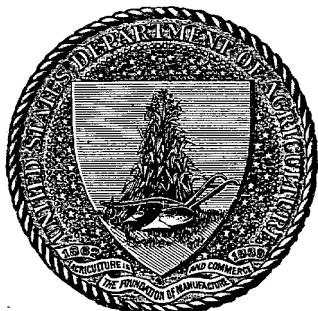
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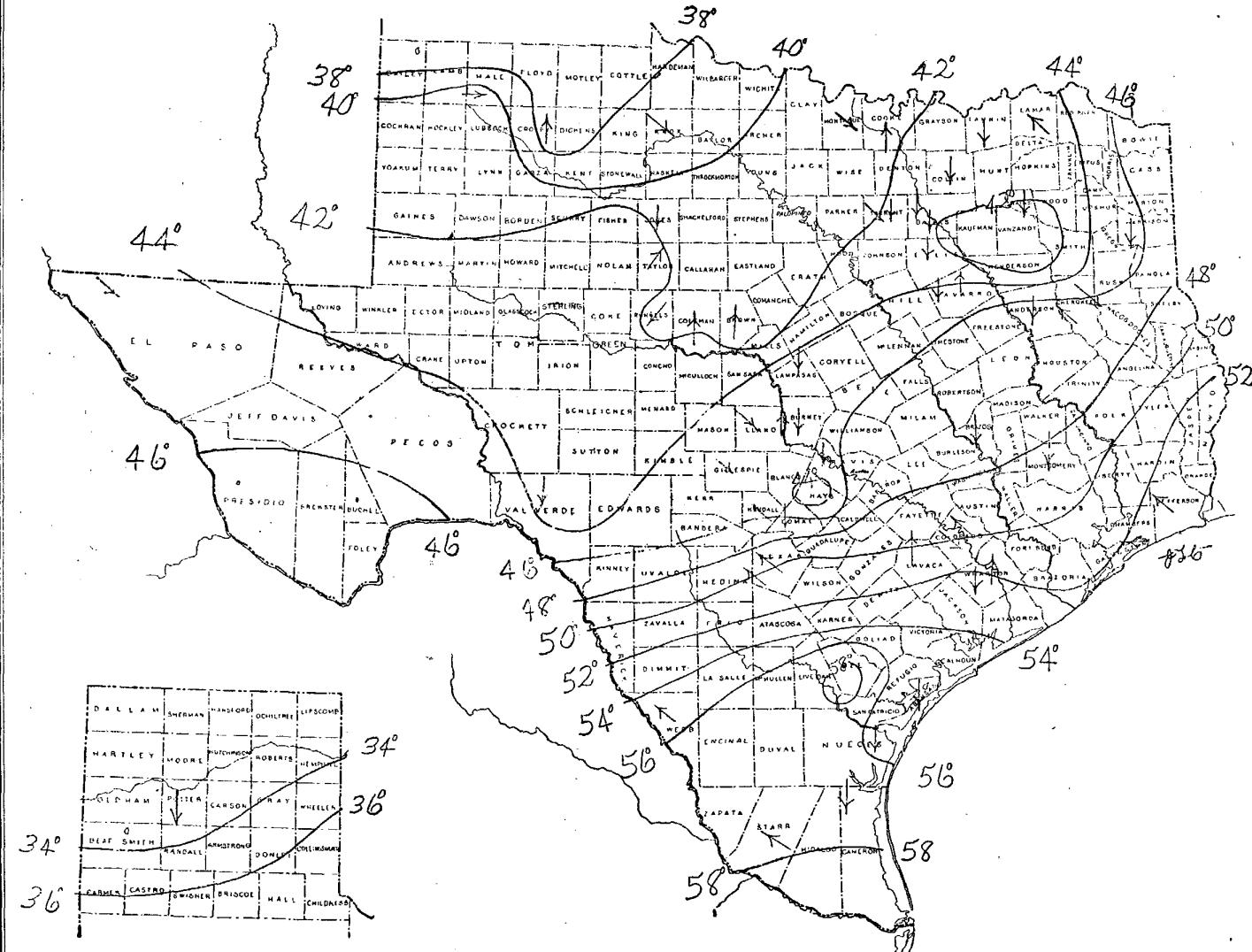
WILLIS L. MOORE  
CHIEF OF WEATHER BUREAU

BY

I. M. CLINE,  
LOCAL FORECAST OFFICIAL AND SECTION DIRECTOR,  
GALVESTON, TEX.



MONTHLY MEAN ISOTHERMS AND PREVAILING WINDS FOR JANUARY, 1899.



U. S. DEPARTMENT OF AGRICULTURE,

## CLIMATE AND CROP SERVICE

OF THE

WEATHER BUREAU.

CENTRAL OFFICE: WASHINGTON, D. C.

TEXAS SECTION.

I. M. CLINE, Section Director,  
GALVESTON, TEX.

VOL. III. GALVESTON, TEX. No. IV.

NOTE.—In the climatological tables all records are used in determining state or district means, but state and district departures are determined by comparison of current data of only such stations as have normals.

## CLIMATOLOGY OF THE MONTH.

## ATMOSPHERIC PRESSURE (in inches and hundredths).

The mean atmospheric pressure, reduced to sea level, as shown by observations taken daily at 8 a. m. and 8 p. m., 75th meridian time, determined from eight stations fairly distributed over the state was 30.12 inches, which is slightly above the normal pressure for January. The mean pressure for the month ranged from 30.10 at Galveston and Corpus Christi to 30.15 at Abilene and Fort Worth. The weather was influenced to some extent by seven areas of relatively high pressure during the month: one prevailed from the 1st to the 4th, one from the 6th to the 8th, one from the 10th to the 12th, one from the 14th to the 19th, one on the 24th and 25th, one on the 28th and 29th, and another was moving eastward across the state on January 31st. The area of high pressure which crossed the state from the 1st to the 4th was more marked than the others and gave the highest pressure for the month at all stations. Six areas of comparatively low pressure crossed the state during the month: one on the 5th, one on the 9th, one on the 13th, one from the 20th to the 23rd, one on the 26th and 27th, and one on the 30th. The area of low pressure which crossed the state on the 30th and early in the morning of the 31st gave the lowest barometer for the month in all sections except in the vicinity of Abilene, where the lowest occurred during the prevalence of the one that crossed the state from the 20th to the 23rd. The highest barometer for the month at the several stations ranged from 30.50 at El Paso to 30.76 at Palestine and Fort Worth, and the lowest ranged from 29.67 at Fort Worth to 29.83 at Amarillo.

## TEMPERATURE (degrees, Fahrenheit).

The temperature on an average for the state during the month, determined by comparison of 41 stations distributed throughout the state was 1.8 below the normal. Nearly normal temperature conditions prevailed along the immediate coast, while there was a general deficiency in the interior. The month opened with the temperature ranging from 5 to 14 below the daily normal, after which it rose rapidly and on January 3rd it ranged from 3 to 17 above the normal and the temperature continued generally above the normal until the

26th, with the greatest daily excess in the interior on the 4th. A cool wave of considerable intensity covered the northern portion of the state at the close of the month and there was a marked daily deficiency from January 27th to 31st, with the greatest in the interior on the latter date. The coldest weather for the month prevailed over the southern portion of the state on January 1st, while the coldest occurred over the northern portion on the 31st and the monthly minimum temperature was recorded at about all stations on one of these dates. Three comparatively warm periods of weather prevailed: one from the 3rd to the 6th, one from the 12th to the 14th, and the other from the 21st to the 23rd inclusive. Only one station, Fort Ringgold, reports a maximum temperature of 90 or above during the month, while all stations report a minimum of 32 or below. There was only one slight freeze along the immediate coast during the month and that occurred on the 1st, while Amarillo reports a minimum temperature of 32 or below for thirty days during the month. The highest monthly mean was 59.0 at Fort Brown, lowest monthly mean 33.8 at Amarillo; maximum 91 at Fort Ringgold on the 21st; minimum 3 below zero at Amarillo on the 31st. Greatest local monthly range, 74 at Roby; least local monthly range, 33 at Rockport from tri-daily observations and 42 at Galveston from self-registering instruments. The greatest local daily range was 56 at Temple (a) on the 7th.

## PRECIPITATION (in inches).

The precipitation on an average for the month determined by comparison of 51 stations distributed throughout the state, was 0.32 below the normal. There was a deficiency ranging from 1 to 2.38 over central Texas and the eastern portion of southwest Texas and the extreme western portion of the coast district and there was a slight deficiency generally elsewhere except along the east coast, where there was a marked excess ranging from 1.83 to 6.70, with the greatest in the vicinity of Galveston. Showery weather prevailed over the southeastern portion of the state, while dry weather continued over the western and northwestern portions. The precipitation for the month was not well distributed. The rainfall—10.39 inches—in the vicinity of Galveston was the greatest that ever occurred in January since opening of the station, covering the record extending back to 1872, while there was none for the month in many parts of western Texas. The number of rainy days during the month ranged from none in many localities over west Texas to 16 in the vicinity of Galveston and Danevang. Excessive precipitation amounting to 1.00 inch per hour or 2.50 inches in twenty-four hours was reported from Alvin on the 26th and 27th, from Columbia on the 27th, from Danevang on the 27th, from Galveston on the 9th and 10th, and on the 26th and 27th, and from Sabine Pass on the 5th.

No snowfall was reported for the month over the southern portion of the state, but snow was pretty general over the northern portion and the greatest local amount was 5.5 inches at Tulia, being the only precipitation at that station for the month. For amount of snow at other stations see column headed "Total snowfall, unmelted," under precipitation, page 5 of this publication.

## MISCELLANEOUS PHENOMENA.

Lunar halos were observed at Alvin on the 19th and 26th, at Anna on the 15th and 19th, at Boerne on the 17th, 19th, and 25th, at Estelle on the 16th and 19th, at Fredericksburg on the 25th, at Fruitland on the 19th, 20th, and 23rd, at Hale Center on the 20th, at Kerrville on the 16th, and at Topaz on the 16th, 19th, and 20th.

Solar halos were reported from Estelle on the 25th and 26th, from Fruitland on the 26th, and from Topaz on the 2nd and 25th.

A light hailstorm was reported from Luling on the 5th. Sleet was reported from Fruitland on the 23rd, and from Jasper on the 28th.

The prevailing winds for the month were north.

Light frosts (stations and dates of occurrence)—Alvin, 7; Austin, 18, 19, 23, 24, 25, 27; Boerne, 2, 19, 25, 27, 30; Corsicana, 20; Dallas, 6, 9, 16; Danevang, 19, 24; Duval, 8, 20, 23; Estelle, 5, 6, 8, 20, 21, 22, 23, 26; Galveston, 2, 28, 29; Houston, 7, 19; Lampasas, 14, 15, 17, 22; Rock Island, 1; Sabine Pass, 6, 7; Topaz, 14, 21, 22.

Heavy frost at Danevang on the 2nd, 7th, 25th, 28th, and 31st, and at Galveston on the 25th.

Killing frosts (stations and dates of occurrence)—Alvin, 25, 28; Austin, 28, 29, 30, 31; Boerne, 1, 7, 24, 28, 29, 31; Brazoria, 1, 6, 23, 24, 25, 27; Brenham, 1, 7, 9, 24, 28, 29; Burnet, 1, 2, 7, 30, 31; Corpus Christi, 1, 24, 28, 31; Corsicana, 1, 2, 7, 19, 28; Dallas, 1, 2, 3, 7, 8, 18, 19, 20; Danevang, 1; Duval, 1, 2, 7, 18, 19, 24, 25, 28, 29, 30, 31; Emory, 7, 18, 19, 20, 25, 28; Estelle, 1, 2, 7, 18, 19, 24, 25, 27, 28, 29, 30, 31; Galveston, 1; Hallettsville, 7, 19, 25, 28; Houston, 1, 2, 25, 28, 29; Huntsville, 29; Jasper, 7, 8, 19, 20, 24, 29; Lampasas, 1, 2, 7, 18, 19, 24, 25, 28, 29, 30, 31; Luling, 7, 19, 25, 28; Sabine Pass, 2, 17, 18, 24; Topaz, 1, 7, 18, 19, 25, 26; Waxahachie, 1, 7, 18, 24, 26, 31; and Weatherford, 1, 6, 18, 24, 27, 28, 31.

Thunderstorms (stations and dates of occurrence)—Boerne, 5; Brazoria, 11, 15; Brenham, 6; Corsicana, 14; Danevang, 6, 9, 11; Emory, 5, 13; Estelle, 4, 13; Galveston, 6, 9, 10, 15, 16; Hallettsville, 9; Luling, 5; Palestine, 5, 13; Sabine Pass, 4, 5, 9, 11, 15, 20; San Antonio (b) 6.

## CONDITION OF CROPS.

The month of January was generally unfavorable for farming operations. All farm work was retarded by wet weather over the southeastern portion of the state where the rainfall was generally excessive. More favorable weather conditions prevailed farther northward and was generally dry over the northwestern portion where rain would be beneficial for putting the ground in better condition for winter plowing.

Fall and winter oats are doing well considering the somewhat unfavorable weather conditions, there being too much rain in some sections. The cold weather affected the crop slightly in places over north Texas, but oats are generally looking well.

The weather during January was generally favorable for wheat, but the crop is somewhat backward on account of dry

weather during the sowing season, causing seed to germinate and come up slowly, and in places the stand is not good. The acreage of wheat sown for the state has been increased considerably, there being a good deal sown in parts of central and northeastern Texas where heretofore none of any consequence has been grown, but the dry weather during the seeding season reduced the acreage to some extent over the extreme western portion of the wheat belt. The crop continues promising and good results are expected with favorable weather conditions. The large acreage in wheat indicates that the farmers are going to diversify crops to a greater extent than heretofore.

The wet weather over the coast district has been injurious to winter vegetables. The strawberry plants have been injured by standing water where not well drained, and the wet weather has retarded the putting out of new plants. Cabbage and turnips have done fairly well, but the weather has been unfavorable for these crops. Onions, cabbage, lettuce, and many other varieties of vegetables are being marketed; strawberry plants are beginning to bloom in places, and a hard freeze now would be very injurious for the trucking interests of the coast district.

The vegetable crops were protected through the freezes which were forecast well in advance of the cold by the U. S. Weather Bureau.

## PERSONAL AND GENERAL.

Mr. H. Foster, voluntary observer at Roby, Texas, resigned and Mr. O. S. Campbell was appointed in his stead. Mr. Foster has been keeping records for this service for some years and they will prove to be of great value in determining the climatic conditions of that section, and we are glad to note that we have secured the services of an excellent man to keep up the meteorological records at Roby.

Mr. F. H. Robinson, voluntary observer, Colmesneil, Texas, has been keeping a record of rainfall at that place and it is with regret that we accept his resignation. His records have always been complete and reliable. Continuous records would be very valuable in determining the climatic conditions of that part of the state.

The voluntary meteorological station at Tivoli, Refugio county, Texas, has been closed on account of the observer moving away from that place.

## MEXICAN TELEGRAPH COMPANY STATIONS.

Through the courtesy of the officials of the Mexican Telegraph Company we are supplied with the data from which the following summaries are prepared for the month of January, 1899:

[Pressure is corrected for temperature and reduced to sea level.]

STATIONS.	Mean barometer.			Mean temperature.		
	8 a. m.	8 p. m.	Monthly	8 a. m.	8 p. m.	Monthly
Tampico, Mex.....	30.172	30.66	30.119	61.5	66.4	64.0
Vera Cruz, Mex.....	.....	.....	.....	66.4	69.2	67.8
Coatzacoalcos, Mex.....	30.083	29.075	29.079	70.1	73.9	72.0

## Climatological data for January, 1899.

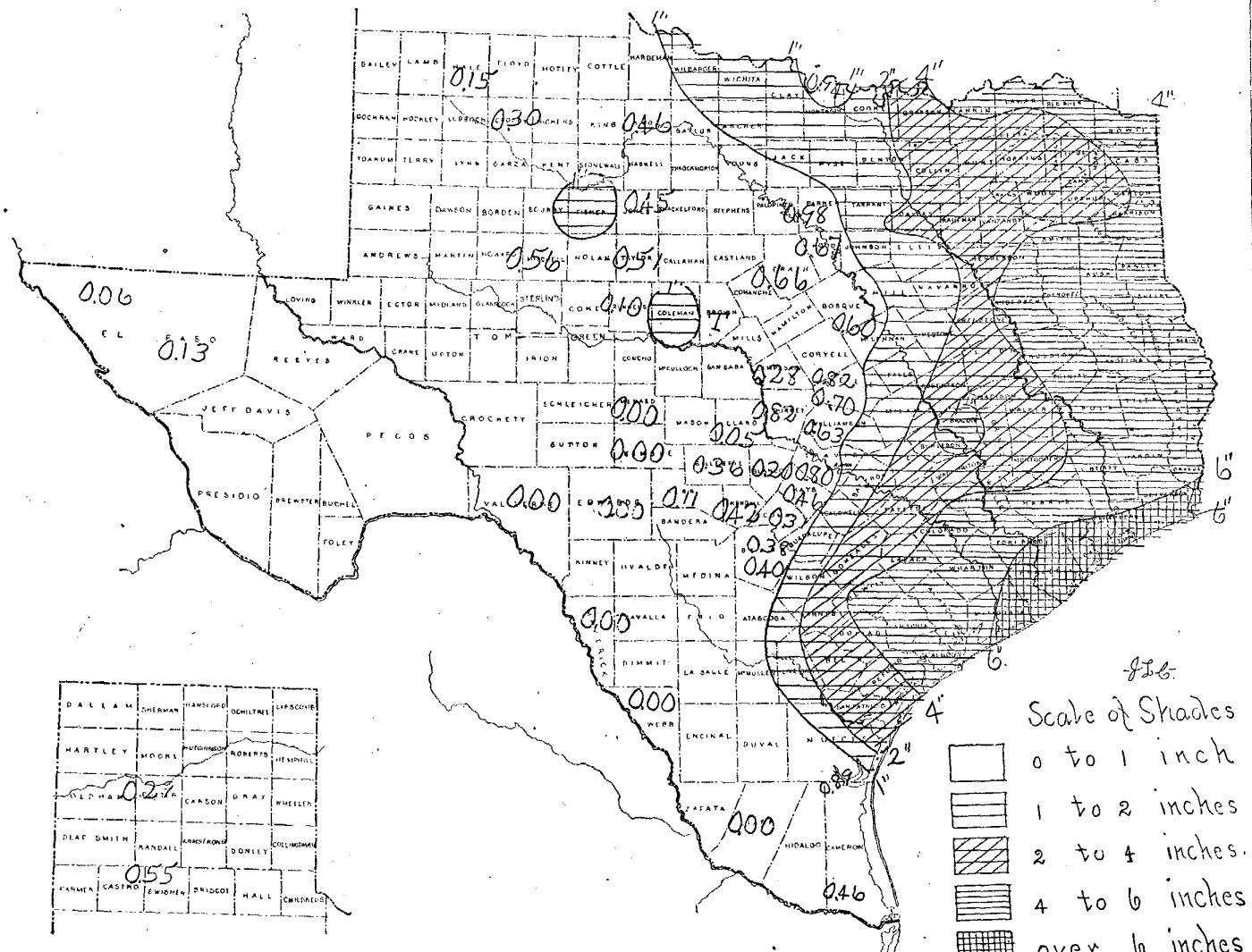
STATIONS.	COUNTIES.	ELEVATION—feet.	LENGTH OF RECORD—YEARS.	TEMPERATURE—IN DEGREES FAHRENHEIT.					NUMBER OF DAYS TEMPERATURE REACHED	PRECIPITATION—IN INCHES.					SKY.	PREVAILING DIRECTION OF WIND.	OBSERVERS.				
				MEAN.	HIGHEST.	LOWEST.	DATE.	GREATEST DAILY RANGE.		90° OR ABOVE.	32° OR BELOW.	TOTAL.	GREATEST IN 24 HOURS.	DEPARTURE FROM THE NORMAL.	TOTAL SNOWFALL UNMELTED.	NUMBER RAINY DAYS.	NUMBER CLEAR DAYS.				
Abilene.	Taylor.	1,748	13	42.3	-2.1	74	12	8	31	40	0	17	0.51	-0.47	0.24	...	6	9	SW.		
Albany*	Shackelford.															13	8	N.			
Alvin.	Brazoria.															16	7	S.			
Amarillo.	Potter.	7	33.8	-1.2	59	22	-3	31	42	0	30	0.29	-0.57	0.16	5	19	9	N.			
Anna.	Collin.			42.6		69	4	58	1	40	0	17	3.13	-1.42	0.5	5	20	5	N.		
Anson.	Jones.																6		N.		
Arthur City.	Lamar.	590	8															5	SE.		
Austin.	Travis.	650	44	45.6	-3.0	75	4	20	130	42	0	15	0.80	+2.46	1.89	0.0	6	6	SE.		
Ballinger.	Runnels.	1,680	44	41.5		74	13	11	31	53	0	23	0.10	-1.49	0.50	T	3	17	6	S.	
Beaumont.	Jefferson.																	8	NE.		
Beeville.	Bee.	200		59.9				79	15	22	1	47	0	11	2.55	1.00	0	6			
Blanco.	Blanco.							74	5	26	1	21	7	2.00	2.00	0	2	11	20	0	
Boerne*.	Kendall.	1,333	10	48.6	-0.8	73	16	19	1	40	0	18	0.20	-1.47	0.20	0.0	4	17	4	SE.	
Brazoria.	Brazoria.	25		52.0	-2.6	75	16	25	1	33	0	3	8.68	+4.13	2.00	0.13	10	17	4	N.	
Breckenridge.	Stephens.			42.2		72	12	9	30							T	0	12	11		
Brenham.	Brenham.	350	9	48.0	-4.1	71	14	20	1	34	0	18	3.45	-1.29	0.75	0.0	11				
Brighton.	Nueces.	12	46.8	58		82	12	26	23	44	0	5	0.89	-0.87	0.29	0.7	7	18	12	N.	
Brownwood*.	Brown.	1,628	9	41.4	-4.5	77	14	12	31	44	0	20	T	-1.79	T	0	1	26	4	S.	
Burnet*.	Burnet.	1,395	450	45.2	+2.2	79	4	115	31		0	82	-1.09	0.55	1.0	3	14	0	*N.		
Camp Eagle Pass.	Maverick.	800	31											-0.69	0.00	0.0	0				
Childress.	Childress.	1,880																			
Coleman*.	Coleman.	1,710	10	43.2	-0.1	78	23	10	31	50	0	17	1.30	+0.01	0.90	2.0	2	12	8	N.	
College Station.	Brazos.	360	10	47.0	-3.7	72	14	23	21		0			-0.53	1.35	0.0	9	9	14		
Colorado City.	Mitchell.	3												-0.56	+0.20	0.34	1.0	6	3		
Columbia.	Brazoria.	30	10	50.7	-3.7	74	13	23	11	35	0	7	8.86	+4.96	2.55	0.0	8				
Conroe.	Montgomery.			49.4		73	13	24	24	31	0	7	3.44	-0.70	0.00	II	13	5	13	N.	
Corpus Christi.	Nueces.	20		54.9	+0.6	78	13	25	1	25	0	3	2.36	-0.15	1.60	0.0	10	13	7	N.	
Corsicana.	Navarro.	445	15	44.8	-1.4	71	5	13	1	52	0	12	1.32	-1.79	0.54	T	7				
Cuero.	DeWitt.	177		44.4	-9.1	68	6	22	1	33	0	14	5.91	+4.66	2.00	0.0	11				
Dallas.	Dallas.	466	41.3	-3.5	70	5	12	12	46	0	18	2.07	-0.78	0.81	T	6	17	1	13	N.	
Danevang.	Wharton.	145		52.0		77	13	22	1	37	0	8	5.96	-3.18	0.0	16	10	6	15	*N.	
Dublin.	Erath.			47.3		71	13	0	31	52	0	17	0.66	-0.43	0.6	0	2	10	10	N.	
Duval.	Travis.	650	8	49.8	+1.6	76	13	18	1	35	0	11	1.82	-0.37	1.35	T	2	20	1	N.W.	
El Paso.	El Paso.	3,830	40	44.5	+0.2	70	28	20	24	41	0	22	0.06	-0.41	0.04	T	7	16	14	*N.	
Emory.	Raines.	550												-0.06	1.06	0.0	1	2	16	N.	
Estelle.	Dallas.	614	42.8			70	4	9	29	38	0	18	1.98	-0.59	0.59	0.8	9	13	2		
Forrestburg.	Montague.													-0.66	0.42	0.5	4				
Fort Brown.	Cameron.	43	37	59.0	-0.3	86	14	32	11	37	0	2	0.46	-1.17	0.30	0.0	4				
Fort Clark.	Kinney.	1,050																			
Fort McIntosh.	Webb.	460	33	55.8	+1.1	84	16	29	16	43	0	7	0.00	-0.71	0.00	0.0	0			SE.	
Fort Ringgold.	Star.	230	38	56.6	-0.7	91	21	29	1	50	1	4	0.00	-1.08	0.00	0.0				SE.	
Fort Stockton.	Pecos.	3,050																			
Fort Worth.	Tarrant.	1,100	11	42.0	-0.2	79	4	12	31	44	0	15	1.24	-1.31	0.47	T	7	9	12	N.W.	
Fredericksburg*.	Gillespie.	1,742	14	d45.1	-4.1	d71	14	c16	1		0	17	0.28	-1.21	0.18	0.0	3	17	5	9	N.W.
Fruitland.	Montague.	1,132	41.2	-1.4	70	16	6	31	42	0	17	1.18	-0.52	1.0	1.5	14	14	5	9	SE.	
Gainesville.	Cooke.			8	40.6	-3.0	68	4	11	42	0	17	1.70	-0.37	0.72	T	1.9	1	12	S.	
Galveston.	Galveston.	54	25	53.0	+0.3	70	23	8	30	1	0	10	3.39	+6.70	2.87	0.0	16	11	5	15	E.
Georgetown*.	Williamson.	750		d45.4		d74	4	18	1+		0			-0.63	0.22	0.4	0				
Golinda.	McLennan.	450	18												-0.66	0.45	0.0				
Grapevine.	Tarrant.	1,110	8	42.0	-1.9	170	4	j10	31		0	25	2.15	-0.60	0.70	0.2	6				
Hale Center.	Hale.	3,000	6	40.6	-0.7	71	22	10	31	41	0	25	0.15	-0.60	0.15	1.5	1	24	3	4	W.
Hallettsville.	Lavaca.	255	7	50.8	-1.3	77	13	22	1	36	0	10	3.94	+1.83	1.05	0.0	8	13	6	12	S.
Hearne.	Robertson.	305																			
Henrietta.	Clay.	915																			
Hewitt.	McLennan.		19																		
Honey Grove.	Fannin.																				
Houston.	Harris.	53	18	-3.0	75	14	27	1	32	0	6	4.34	-0.46	1.79	0.0	11	5	18	4	9	N.
Hulen.	Galveston.			52.7		70	13	25	1	34	0	3	9.60	-3.23	0.0	14					
Huntsville.	Walker.	400	10	47.6	-1.2	74	12	18	1	38	0	11	3.03	-2.19	1.02	T	6	29	29	0	N.
Jacksonville.	Cherokee.			47.5		71	13	15	2	42	0	12	4.19	-1.82	T	8	12	9	10	*SE.	
Jasper.	Jasper.			53.4		85	14	24	1	47	0	11	4.72	-2.22	0.20	T	4	5	18	4	N.
Junction City.	Kimble.																				
Kent.	El Paso.	6																			
Kerrville.	Kerr.	1,750	44.6			74	17	14	1	57	0	21	0.11	-0.50	0.13	0.0	1				
Lampasas.	Lampasas.	1,026	7	44.6	-3.5	71	1	31	1	39	0	15	0.28	-2.38	0.16	0.5	4	19	10	2	N.
Lanquith.	Vai Verde.	1,400		K43.3		78	10	K18	30		0			-0.00	0.00	0.0	0				
Llano*.	Llano.	1,700	7	48.2	-1.4	73	21	20	3	40	0	10	4.09	-0.83	0.05	0.5	1	14	3	14	N.W.
Longview.	Gregg.	336	8	44.6	-4.0	71	15	18	1	39	0	16	4.09	-2.98	1.90	T	7	20	6	12	N.
Luling.	Caldwell.	418	9	49.0	-2.5	76	5	20	1	40	0	10	1.18	-1.20	0.40	0.0	7				
Mann.	Navarro.	450		e40.0		d66	12	e15	31		0			-0.00	0.00	0.1	4	12	7	12	N.
Marathon.	Harrison.	4,000		46.8		72	4	18	1	35	0	10	5.48	-0.97	1.34	9	9	11	11	N.	
Marshall.	Menard.	300	9	-2.9	72	22	6	19	1	35	0	16	0.67	-2.01	0.54	T	0				
Mount Blanco.	Crosby.	13	13	37.2	-2.9	70	22	6	19	31	0	10	3.15	-1.29	0.35	0.0	0				
New Braunfels.	Comal.	720	15	48.9	-1.3	74	14	21	1	35	0	10	3.1	-1.77	0.18	0.0	3	16	9	6	N.
Palestine.	Anderson.	511	17	46.6	-2.4	70	13	18	31	35	0	10	5.48	-0.97	1.						

## CLIMATE AND CROPS: TEXAS SECTION

JANUARY, 1899.

Daily maximum and minimum temperatures during the month of January, 1899.

## TOTAL PRECIPITATION FOR JANUARY, 1899.



**Daily precipitation for January, 1899.**

T indicates amount too small to measure.